

UNIT 7 DAY 3 - Mixture Problems

- 1) A pharmacist wishes to strengthen a mixture that is 10% alcohol to one that is 30% alcohol. How much pure alcohol should be added to 7 liters of the 10% mixture?

	Volume mixture (L)	% alcohol	Vol. of (L) Alcohol Mix
Start	7	.10	.10(7)
Add	x	1	1x
Finish	7+x	.30	$\frac{.10(7) + x}{3(7+x)}$

let x = Vol. of pure Alc. Added (L)

Vol of alc from 10% mix + Vol pure alc. added = Vol of alc in finish product

$$.10(7) + x = .3(7+x)$$

$x = 2$

Add 2 liter
of pure alc

- 3) For a chemistry class, the instructor needs a 20% solution of potassium permanganate. She had a 15% solution on hand, as well as a 30% solution. How many liters of the 15% solution should she add to 3 liters of the 30% solution to get the 20% solution?

4) Brand X sells 21 oz. bags of mixed nuts that contain 29% peanuts.

To make their product they combine Brand A mixed nuts which contain 35% peanuts and Brand B mixed nuts which contain 25% peanuts. How much of each do they need?

	Volume mix (oz)	% Peanuts	Vol. Peanuts in mix
Start A	a	.35	$.35a$
Add B	$21-a$.25	$.25(21-a)$
Finish X	21	.29	$.35a + .25(21-a)$ $21(.29)$

let a = Vol of mix A

$$\begin{array}{c} \text{Vol. Pear.} \\ \text{in A} \end{array} + \begin{array}{c} \text{Vol Peanuts} \\ \text{in B} \end{array} = \begin{array}{c} \text{Vol Peanut} \\ \text{in X} \end{array}$$

HMK - Unit 7 D3 Mixture Worksheet

$$.35a + .25(21-a) = 21(.29)$$

$$a = 8.4$$

8.4 oz A, 12.6 oz B

